

### The Law of Obviousness

A claimed invention is unpatentable due to obviousness if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art." 35 U.S.C. §103(a).

As discussed by the Court of Appeals for the Federal Circuit, a proper conclusion of obviousness under 35 U.S.C. §103 requires that there be some motivation in the prior art that suggests the claimed invention as a whole:

[A]n Examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." [Citations omitted] To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show motivation to combine the references that create the case of obviousness.

*In re Rouffet*, 149 F.3d 1350, 1357; 47 U.S.P.Q.2d 1453, 1457-1458 (Fed. Cir. 1998). As further explained by the Federal Circuit:

Our case law makes clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. *See Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617. "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Id.*

"When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." *In re Rouffet*, 149 F.3d 1350, 1355, 47 U.S.P.Q.2d 1453, 1456 (Fed. Cir. 1998) (citing *In re Geiger*, 815 F.2d 686, 688, 2 U.S.P.Q.2d 1276, 1278 (Fed. Cir. 1987)).

*Ecolchem, Inc. v. Southern California Edison Co.*, 56 U.S.P.Q.2d 1065, 1072-73 (Fed. Cir. 2000). The showing of the motivation to combine must be "clear and particular." *See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998); *Teleflex, Inc. v. Ficosa North Am. Corp.*, 63 U.S.P.Q.2d 1374, 1387 (Fed. Cir. 2002).

The Subject Matter of Claims 1-6 is Patentable Over the Cited References

The Applicant submits that the conclusion of obviousness is in error and that the office action has applied improper hindsight by using the applicant's own disclosure as a blueprint to reconstruct the invention by selecting various features from each of the cited references. The required "clear and particular" motivation to combine the references is lacking.

The Luke et al. patent discloses an apparatus that includes a Michelson interferometer 14 (FIG. 1). The interferometer includes an optical element (e.g., lens 44) a beamsplitter 46, a first reflector (e.g., mirror 56) and a second reflector (e.g., mirror 64). The reflected beams recombine as an interference beam at the beamsplitter 46. The interference beam is sent to another beamsplitter (dichroic mirror 66), which splits the beam into beams of two different wavelengths. The split beams are sent to detectors 78, 82 whose outputs are analyzed by computer 84. Col. 10, lines 20-47.

Luke et al. discloses that the mirror 56 is translatable in a direction parallel to the light propagation arm 50. Col. 12, lines 50-51. The interferogram is formed by interference between the light following the path through the sensor fiber 38 and then reflected from the translatable mirror 56. As the mirror is translated, the intensity of light at the detector 78 will change and the variation in optical path differences can be deduced. FIG. 3 and col. 15, lines 31-46.

Thus, Luke describes a Michelson interferometer with a mirror translatable in a direction parallel to the light path.

Sica et al. discloses an interferometer that (1) uses a mirror that is angled with respect to the light path, and (2) specifically criticized the use of a Michelson-type interferometer. Col. 1, lines 12-14. The Sica et al. patent discloses a procedure whereby the mirror 27 is tilted at a first angle,  $\beta_i$ , and a speckle pattern recorded. This pattern is compared to a second speckle pattern recorded with the mirror at a second angle,  $\beta_d$ . Col. 3, lines 39-57

It would not have been obvious to combine the cited references for at least two reasons. First, Sica et al. specifically criticizes the use of the Michelson-type interferometer. *See* col. 1, lines 6-34 where the deficiencies of a Michelson-type interferometer are discussed. Thus, there would have been no motivation to apply the teaching of Sica et al. to the teaching of Luke et al., which like the present application, uses a Michelson-type interferometer.

Second, the Sica et al. patent discloses in FIG. 1 a mirror 27 that is angled with respect to the light path 23. In contrast, the Luke et al. patent discloses a mirror that is translated with respect to the light path. There is no suggestion in Luke et al. of angling the mirror and, conversely, no suggestion in Sica et al. of translating the mirror. Indeed, in Luke et al. it is the translation of the mirror that provides the necessary interference patterns. Similarly, in Sica et al. it is the comparison of interference patterns at two different mirror angles that provides the necessary comparison data. Thus, there would have been no motivation in either reference to adopt the mirror positioning of the other.

The subject matter of claims 7-34 is patentable over the cited reference. The Applicant respectfully submits that the office action does not address all of the arguments presented by the Applicant in reply to the previous Office Action.

The Dou et al. patent discloses a Mach-Zehnder interferometer 10 (FIG. 1) that includes a beam splitter 14 and first and second reflectors (e.g., mirrors 20, 22). The reflected waves are recombined by another beam splitter 24 to provide an interference wave 26. A detector (e.g., camera 34) records the interferogram and sends it to the computer 38 to obtain the phase difference.


There is no disclosure or suggestion in the Dou et al. patent of inclining the wavefront of one of the reflected beams. The Office action simply states that "the inclination of a reflector or beam splitter to change a property of light to generate interference is well known" and that "the insertion of a wedge in an optical path to change the characteristics of the light and thereby create interference is well known in the art" (underlining added). The Office action, however, fails to point to any basis for those assertions. Deficiencies of the cited references cannot be remedied by general conclusions about what is "basic knowledge or common sense." In re Lee, 277 F.3d 1338, 1345 (Fed. Cir. 2002). Furthermore, the office action, points to no motivation for changing the apparatus of the Dou et al. patent so that the wavefronts incline with respect to one another.

#### Conclusion

In view of the foregoing remarks, applicant submits that all pending claims are in condition for allowance and respectfully requests such favorable action.,

The Applicant does not believe that any fees are due. However, please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

  
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